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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/962,362	10/31/1997	NOBUYUKI KAMBE	2950.08US01	8780
7590	12/17/2004		EXAMINER	
PETER S. DARDI PATTERSON, THUENTE, SKAAR & CHRISTENSON, P. A. 4800 IDS CENTER 80 SOUTH 8TH STREET MINNEAPOLIS, MN 55402-2100			GUHARAY, KARABI	
			ART UNIT	PAPER NUMBER
			2879	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 08/962,362	Applicant(s) KAMBE ET AL.
	Examiner Karabi Guharay	Art Unit 2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 24 September 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-6,20-30 and 32-34 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-6, 20-30 and 32-34 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date .
4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ .
5) Notice of Informal Patent Application (PTO-152)
6) Other: .

Applicant's Appeal brief, filed on 9/24/2004 has been considered and entered.

Upon further consideration of claims the finality of the previous Office action is hereby withdrawn pursuant to 37 CFR 1.129(a).

Prosecution for the case has been reopened.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Since claim 31 is cancelled and claim 33 is dependent on claim 31, the scope of the claim cannot be ascertained.

Appropriate correction is required.

For the examination purpose, claim 33 is considered to be dependent from claim 32.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6, 20-30, are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaskie (US 5442254) further in view of Bhargava (US 5455489).

Referring to claims 1, 4, and 5, Jaskie discloses a display (see FIG. 5) comprising phosphor particles (fluorescent layer 53) having an average diameter less than 95 nm (see abstract, 10 nm particles) wherein the particle size is selected to yield light in a desirable portion of the spectrum. Jaskie is silent as to the particular range of phosphor particles. Jaskie teaches, however, that the specification of a desired particle range is within the skill of the art. See col. 7, lines 34-40. It would have been obvious to specify a desired particle range because the specification of a desired particle range is generally recognized to be within the skill of the art. Furthermore Jaskie does not exemplify that phosphor particle comprises metal oxide. However, Bhargava teaches that metal oxide particles such as ZnO (group II-VI, semiconductor), ZnS, and Y₂O₃ (see col. 2, lines 4-32), are all suitable for quantum contained phosphors, such as desired by Jaskie. It would have been obvious to select ZnO, ZnS, and Y₂O₃, phosphors as disclosed by Bhargava, in the display, as disclosed by Jaskie, because the selection of known materials for a known purpose is within the skill of the art.

Still referring to claims 1, 4, and 5, substituting an average diameter of 5 nm as recited in claim 4, into the narrower range of particle sizes as recited in claim 5, yields a range of particle sizes of from 3 to 7 nm. Now referring to column 6, lines 46-49, Jaskie teaches that yellow light is produced from particles having a size of approximately 5 nm. Jaskie further teaches that the energy of a photon is inversely proportional to wavelength (col. 1, line 52-55), and inversely proportional to the size of the phosphor

particle (col. 4, line 40-44). Taking yellow light to be the band from 597 to 577 nm and using the equations provided in column 1, line 52-55, and column 4, line 40-44 yields the yellow phosphor having the size from 5.04 to 4.95 nm, i.e., approximately 5 nm, as disclosed by Jaskie. Similarly, substituting the wavelength range of visible light from 400 to 800 nm, yield a particle distribution of from 4.14 to 5.84 nm, which is within the claimed range from 3 to 7 nm. Consequently, it is the position of the examiner that it would have been obvious to one skilled in the art that the presently claimed range of sizes reads on the teachings of Jaskie.

Referring to claim 6, Jaskie teaches that the light emission follows low velocity electron excitation.

Referring to claims 2, 3, the selection of known materials for a known purpose is generally considered to be within the skill of the art. Bhargava teaches that ZnO (group II-VI, semiconductor), ZnS, and Y_2O_3 (see col. 2, lines 4-32), are all suitable for quantum contained phosphors, such as desired by Jaskie. It would have been obvious to select ZnO, ZnS, and Y_2O_3 , phosphors as disclosed by Bhargava, in the display, as disclosed by Jaskie, because the selection of known materials for a known purpose is within the skill of the art.

Referring to claims 20, and 21, FED displays conventionally include a plurality of phosphors for generating red, blue, green light (see for example Clerc, FIG. 6, RGB phosphors 28), and anodes 28.

Referring to claims 22, 23, see col. 1, line 26; FIG. 5, faceplate 52.

Claim 24, and 27 are rejected for the same reason as claim 21.

Referring to claim 25, see FIG. 4, focus grid 59.

Claim 28 is rejected for the same reason as claims 20, 21.

Referring to claims 29 & 34, see FIG. 2, and col. 6, line 48.

Claim 30 is rejected for the same reason as claim 6.

Referring to claim 26, Jaskie does not disclose an EL display. Bhargava teaches that quantum confined phosphors provide EL displays (see FIG. 15) with higher efficiency (see col. 9, lines 46-67). It would have been obvious to include the quantum-confined phosphors, as disclosed by Jaskie, in the EL display, as disclosed by Bhargava, for higher efficiency.

Claims 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamatani et al. (US 5892999), and further in view of Jaskie (US 5442254).

Regarding claim 32, Tamatani et al. disclose a display device (lines 1-6 of column 4) comprising a collection of ultra-fine phosphor particle having an average diameter from 1-100 nm (lines 26-36 of column 4). But, Tamatani is silent about the range of the phosphor particles.

However, Parker et al. discloses a method of making nano-size particles having average particle diameter between 30nm- 50nm (lines 25-26 of column 6) having size distribution range within the claimed range (see table 2) which enables rapid production of ultra-fine particles while controlling the particle size.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the method of Parker et al. for producing particles of size 30 nm – 50 nm and having desired narrow particle size distribution.

Regarding claim 33, Tamatani et al. disclose that the phosphor particle is a metal compound such as ZnO (line 30 of column 4).

Response to Arguments

Applicant's arguments, presented on 24 September 2004, for claims 1-6 & 20-30 are considered but not persuasive.

A board of Patent Appeals and Interferences decision in an application has *res judicata* effect and is the "law of the case" and is thus controlling in that application and any subsequent related application. Therefore, a submission containing arguments without an amendment of the rejected claims or the submission of a showing of facts will not be effective to remove such rejection. See MPEP 706.03(W) and 1214.01.

In this instant case, applicant's amendment of claim 1 does not effect the rejection of claims presented to the board of Patent Appeals and Interferences and further doesn't address the issue of arguments.

Regarding new claims (claims 32-34) applicant's arguments are persuasive and further new grounds of rejections have been presented above.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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